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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,934	08/08/2001	Matthew C. Mattina	1662-38300 JMH (P01-3570)	3940
22879 7590 04/19/2007 HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			EXAMINER ANYA, CHARLES E	
			ART UNIT 2194	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE 3 MONTHS		MAIL DATE 04/19/2007	DELIVERY MODE PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/924,934

Applicant(s)

MATTINA ET AL.

Examiner

Charles E. Anya

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/8/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 13-16, 20, 24-26, 30 and 31 is/are rejected.
- 7) ☒ Claim(s) 4-12, 17-19, 21-23, 27-29 and 32-34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____


WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-34 are pending in this application.
2. In view of the Appeal Brief filed on 12/26/07, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 1,13,16,20,24,30 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,887,138 to Hagersten et al.

5. As to claim 1, Hagersten teaches a distributed multiprocessing computer system, which includes a plurality of processors each coupled to an associated memory module, wherein each associated memory module may store data that is shared between said processors (figures 1-2), said system comprising: a Home processor that includes a memory block and a directory for said memory block in an associated memory module (Home Node/SMP 12 (Directory 66/Memory 22) Col. 7 Ln. 6 – 61, figure 2 Col. 10 Ln. 59 – 67, Col. 14 Ln. 13 – 24); an Owner processor that includes a cache memory (Requesting Node/SMP12 (External Caches 18) Col. 7 Ln. 6 – 47, Col. 8 Ln. 10 – 29), and wherein said Owner processor obtains an exclusive copy of said memory block, and stores said exclusive copy of said memory block in said cache memory (“...cache data...” Col. 9 Ln. 18 – 25, Col. 9 Ln. 54 – 57, “...read/write...” Col. 13 Ln. 21 – 30, “When clear...not written the updated copy...” Col. 15 Ln. 33 – 39); and wherein said Owner processor may displace the exclusive copy of said memory block, and return said displaced copy of said memory block to said Home processor (“Write back...” Col. 15 Ln. 32 – 36, Col. 24 Ln. 11 – 16) with a signal indicating that said Owner processor remains a sharer of said memory block (“...discarded...shared state...without acquiring the owned state...” Col. 13 Ln. 21 – 39, “...write stream transaction to a shared...” Col. 24 Ln. 16 – 23).

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6. As to claims 13 and 24, see the rejection of claim 1 above.
7. As to claim 16, Hagersten teaches the method of claim 13, wherein the act of updating the coherence directory includes modifying a register to indicate that the Owner processor has an exclusive copy of the memory block ("...updates..." Col. 19 Ln. 28 – 30).
8. As to claims 20, Hagersten teaches the method of claim 13 further comprising the act of asserting a request to again obtain an exclusive copy of said memory block ("...without acquiring the owned state..." Col. 13 Ln. 39 – 47).
9. As to claim 30, see the rejection of claim 20 above.
10. As to claim 31, Razdan teaches the distributed multiprocessing computer system of claim 30, wherein the second processor asserts a request to read, modify and conditionally store said memory block to said first processor (Col. 4 Ln. 38 – 55).
11. **Claims 2,3,14,15,25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,887,138 to Hagersten et al. in view of U.S. Pat. No. 6,141,734 B1 to Razdan et al.**

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12. As to claim 2, Hagersten teaches the directory associated with the Home processor indicates that said Owner processor has obtained exclusive control of said memory block (Directory 66 Col. 19 Ln. 15 – 34).

Hagersten is silent with reference to the distributed multiprocessing computer system of claim 1, wherein said Owner processor obtains an exclusive copy of said memory block by issuing a Load Lock instruction.

Razdan teaches the distributed multiprocessing computer system of claim 1, wherein said Owner processor obtains an exclusive copy of said memory block by issuing a Load Lock instruction (Col. 4 Ln. 38 – 55).

It would have been obvious to one of ordinary skill in the art at the time invention was made to modify the system of Hagersten with the teaching of Razdan because the teaching of Razdan would improve the system of Hagersten by allowing for techniques to streamline processing within the CPU, while at the same time attempting to reduce the total number of memory accesses.

13. As to claim 3, Hagersten teaches the distributed multiprocessing computer system of claim 2, wherein said Owner processor is capable of executing multiple threads concurrently (the sharer state indicates that more than one slave agent 104/home agent 102 could access the same memory at the same time, which in essence means that multiple slave agent 104/home agent 102 of each SMP node 12A-D would be executing parallel/concurrently), and may displace data associated with a

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non-executing thread from its associated cache memory ("...discarded..." Col. 13 Ln. 21 – 39).

14. As to claims 14,15 and 25, see the rejection of claim 2 above.

15. As to claim 26, see the rejection of claim 3 above.

Allowable Subject Matter

Claims 4-12,17-19,21-23,27-29 and 32-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and claims 4-6 or 17-19 or 27-29.

Response to Arguments

Applicant's arguments with respect to claims 1-34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E. Anya whose telephone number is 571-272-3757. The examiner can normally be reached on 8:30-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on 571-272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

cea.


WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER